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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/054,852	01/25/2002	Masakuni Ezumi	648.41111X00	2068

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EXAMINER

EDMONDSON, LYNNE RENEE

ART UNIT	PAPER NUMBER
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1725

DATE MAILED: 12/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/054,852

Applicant(s)

EZUMI ET AL.

Examiner

Lynne Edmondson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,5,6,9-12 and 25-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 5, 6, 9-12 and 25-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1, 2, 5, 6, 9-12, 26, 27, 29, 31 and 32 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 2, 4, 8 and 9 of copending Application No. 10/600614. Although the conflicting claims are not identical, they are not patentably distinct from each other because both teach friction stir welding. Instant claims 1, 2, 5, 6 and 9-12 teach a friction stir welding method wherein hollow members with face plates having interlocking (grooves and projections) sections are engaged and placed in abutment and joined by insertion of a rotary tool inserted within a diameter range. This method is taught in '614 claims 1, 2, 8 and 9 without the statement of insertion within a diameter range or range of depth of the recess. However, insertion within a diameter range is necessary to insert the tool into the overlapped portion from an outer side. The connector plate of the instant claims is equivalent to the third plate of the '614 claims. Although the term

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"hollow member" is not used in the '614 claims, parallel face plates with an orthogonal connecting member describe a hollow member in '614 claim 1 or instant claim 26.

Friction stir welding occurs at the abutment, which is substantially on an extension of the center line of the thickness of the connecting (or third) plate (instant claims 27 and 29 and '614 claims 2, 4 and 9). There is no disclosure of an orthogonal connecting plate in the second member ('614 claim 1 and instant claim 26). Although the term "plasticized" is not used in the '614 claims this is understood to be the process of friction stir welding wherein a pin is inserted and rotated at high speed to force material to soften, plasticize or flow.

It would have been obvious to one of ordinary skill in the art at the time of the invention that the structures are the same although the terminology is slightly different and that the friction welding method would be the same for interlocked members regardless of other shapes and structures present in or on the member.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 33-40 are rejected under 35 U.S.C. 102(b) as being anticipated by Rosen et al. (USPN 6045027).

Rosen teaches a friction stir welding method comprising abutting an end portion in the width direction of the first plate (39B) against an end portion in the width direction of a second plate (39A), the first plate having a trapezoidal recessed portion opened outward (42B) and the second plate having trapezoidal projection projecting outward (42A), wherein the plates are interlocked when the members are placed in abutment (figure 3A). The abutted members are welded by disposal of a rotary tool into the abutment (figure 3B) such that the small diameter portion of the rotary tool extends beyond a bottom surface of the recess (col 3 lines 49-59 and col 4 line 21 – col 5 line 30). It is noted that the particular shape of the structure does not change the basic stir welding method wherein the rotary tool is rotated at a speed, which softens the material at the joint. See also Rosen claims 1-4, 10-13, 16 and 18-22.

4. Claims 33-40 are rejected under 35 U.S.C. 102(e) as being anticipated by Ezumi et al. (USPN 6582831 B2).

Ezumi teaches a friction stir welding method comprising abutting an end portion in the width direction of the first plate (11) against an end portion in the width direction of a second plate (31), the first plate having a trapezoidal recessed portion opened

outward (14) and the second plate having trapezoidal projection projecting outward (34), wherein the plates are interlocked when the members are placed in abutment (figures 1 and 2 and col 4 lines 1-40). The abutted members are welded by disposal of a rotary tool into the abutment such that the small diameter portion of the rotary tool extends beyond a bottom surface of the recess (figure 3, col 6 lines 8-67 and col 7 lines 28-30). It is noted that the particular shape of the structure does not change the basic stir welding method wherein the rotary tool is rotated at a speed, which softens the material at the joint.

5. Claims 1, 2, 5, 6, 9-12, 25-29, 31, 32 and 36-38 are rejected under 35 U.S.C. 102(e) as being anticipated by Aota et al. (USPN 6050474).

Aota teaches a method of friction stir welding comprising abutting the end portion of a first hollow member 50) butted against a second hollow member (60), wherein the first hollow member comprises two face plates (51, 52), a first connecting plate (53) and a second connecting plate (54) which is substantially orthogonal to the face plates with recessed portions (56a) formed to connecting portions and projections (protruding blocks 56) formed to the recessed portions, wherein the second hollow member comprises two face plates (61, 62), projecting portions (66, 66a) and a connector (63) which is not orthogonal to the face plates (figure 1). The projections (66, 66a) are inserted into corresponding grooves (56a) when abutted prior to insertion of a rotary tool to an insertion depth, which extends into the groove (col 5 lines 35-67). The thickness of the first hollow shape is greater at the abutment (figure 1 and col 4 lines 50-65). It is

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noted that the particular shape of the structure does not change the basic stir welding method wherein the rotary tool is rotated at a speed, which softens the material at the joint. See also Aota claims 1-10.

6. Claims 1, 2, 9-12, 25-29, 31, 32, 36-38 and 40 are rejected under 35 U.S.C. 102(e) as being anticipated by Ezumi et al. (USPN 6193137).

Ezumi teaches a method of friction stir welding comprising abutting the end portion of a first hollow member (10, 110) butted against a second hollow member (11,100), wherein the first hollow member comprises two face plates (101,102), a first connecting plate (113) and a second connecting plate (116) which is substantially orthogonal to the face plates with recessed portions (121) formed to connecting portions (116) and projections (protruding blocks 117) formed to the recessed portions, wherein the second hollow member comprises two face plates (101,102), projecting portions (104) and a connector (103) which is not orthogonal to the face plates (figures 12-14). The projections (104) are inserted into corresponding grooves (121) when abutted prior to insertion of a rotary tool to an insertion depth, which extends into the groove (col 4 lines 30-55 and col 9 line 47 – col 10 line 7). The thickness of the first hollow shape is greater at the abutment (figure 7 and col 12 lines 1-5). It is noted that the particular shape of the structure does not change the basic stir welding method wherein the rotary tool is rotated at a speed, which softens the material at the joint. As shown in figures 6-8 and 14, the groove and projection may be trapezoidal.

7. Claims 1, 2, 5, 6, 9-12, 25 and 27-40 are rejected under 35 U.S.C. 102(e) as being anticipated by Ezumi et al. (USPN 6050474).

Ezumi teaches a method of friction stir welding comprising abutting the end portion of a first hollow member 50) butted against a second hollow member (60), wherein the first hollow member comprises two face plates (51, 52), a first connecting plate (53) and a second connecting plate (54) which is substantially orthogonal to the face plates with recessed portions (56a) formed to connecting portions and projections (protruding blocks 56) formed to the recessed portions, wherein the second hollow member comprises two face plates (61, 62), projecting portions (66, 66a) and a connector (63) which is not orthogonal to the face plates (figure 1). The projections (66, 66a) are inserted into corresponding grooves (56a) when abutted prior to insertion of a rotary tool to an insertion depth, which extends into the groove (col 5 lines 35-67). The thickness of the first hollow shape is greater at the abutment (figure 1 and col 4 lines 50-65). It is noted that the particular shape of the structure does not change the basic stir welding method wherein the rotary tool is rotated at a speed, which softens the material at the joint.

8. Claims 1, 2, 5, 6, 9-12, 25, 27-34 and 36-39 are rejected under 35 U.S.C. 102(e) as being anticipated by Kawasaki et al. (USPN 6321975 B1).

Kawasaki teaches a friction stir welding method for welding hollow members with orthogonal face plates (figure 1), wherein the plates and members are connected to connecting members comprising grooves and projections which are interlocked when

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the members are placed in abutment (col 2 line 33 – col 3 line 10). The abutted members are welded by disposal of a rotary tool into the abutment wherein the groove and projection are disposed within the range of diameter of the small diameter of the rotary tool (col 3 lines 11-35 and col 3 lines 45-54) and the depth of the rotary tool (col 4 lines 5-41).). As shown in figure 1, each recessed portion (above and below 36) includes a protruded block (35,36) supporting face plate 34 and the thickness of the first member (20) is greater at the abutment (see 25) than at other portions. However, it is noted that the particular shape of the structure does not change the basic stir welding method wherein the rotary tool is rotated at a speed, which softens the material at the joint. The tool is inserted to a depth beyond a bottom surface of the recessed portion (col 4 lines 10-20 and lines 33-40 and claim 9). See also Kawasaki claims 6-13.

9. Claims 9-12 and 33-40 are rejected under 35 U.S.C. 102(e) as being anticipated by Nakamura et al. (USPN 6413610 B1).

Nakamura teaches a friction stir welding method for welding hollow members with diagonal face plates (figure 1), wherein the plates and members are connected to connecting members comprising grooves and projections which are interlocked when the members are placed in abutment (col 4 lines 56-67). The abutted members are welded by disposal of a rotary tool into the abutment wherein the groove and projection are disposed within the range of diameter and depth of the small diameter of the rotary tool (col 5 line 38 – col 6 line 16, col 6 lines 30-51 and figures 5-8). As shown in figure 1, each recessed portion (15b,26b) includes a protruded block 26,15) and the thickness of

the first member (20) is greater at the abutment than at other portions. However, it is noted that the particular shape of the structure does not change the basic stir welding method wherein the rotary tool is rotated at a speed, which softens the material at the joint. The tool is inserted to a depth beyond a bottom surface of the recessed portion (figure 1 and col 5 lines 55-65). See also Nakamura claims 11-21.

Response to Arguments

10. Regarding applicant's argument that Matsunaga is not applicable as prior art, it is noted that the foreign priority date is 4/16/01. The publication date of the reference is 8/23/01, however the filing date of the reference is 2/21/01.

11. Regarding applicant's argument that Kawasaki is not applicable as prior art, it is noted that the foreign priority date is 4/16/01. The patent date of the reference is 7/27/01, however the filing date of the reference is 5/31/00.

12. Regarding applicant's argument that Kawasaki teaches extra steps in addition to the claimed steps but no insertion of the protrusions into the grooves, see figure 1 where projections 25, projecting from plate 24 are inserted into grooves (above and below 36) prior to joining.

Therefore the 102 rejection of claims 1, 2, 5, 6 and 9-12 as anticipated by Kawasaki stands and now includes new claims 25, 27-34 and 36-39.

13. Regarding applicant's argument that Nakamura is not applicable as prior art, it is noted that the foreign priority date is 4/16/01. The patent date of the reference is 7/2/02, however the filing date of the reference is 2/21/01.

14. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., a structure with ribs) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). The claims disclose hollow members comprising face plates with projections and recesses or grooves.

Therefore the 102 rejection of claims 9-12 as anticipated by Nakamura stands and now includes new claims 33-40.

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ezumi et al. (US 2002/0030081, claimed method, solid members), Ezumi et al. (US 2002/0092888 A1), Kawasaki et al. (USPN 6582832 B2), Ezumi et al. (USPN 6557746 B2), Ezumi et al. (USPN 6250037 B1) and Ezumi et al. (USPN 6474533 B1).

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16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lynne Edmondson whose telephone number is (703) 306-5699. The examiner can normally be reached on Monday through Thursday from 6:30 a.m. to 5 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (703) 308-3318. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0651.

LRE

Lynne Edmondson
Examiner
Art Unit 1725



11/12/03